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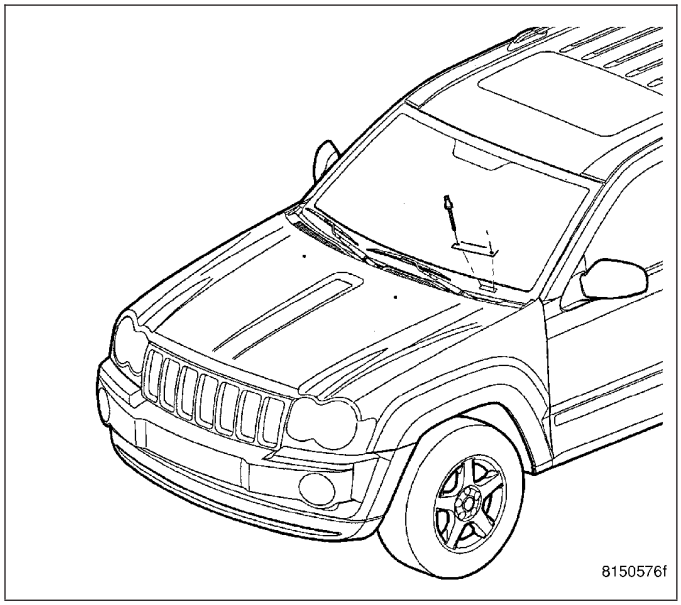
VEHICLE IDENTIFICATION NUMBER

DESCRIPTION

The Vehicle Identification Number (VIN) plate is attached to the top left side of the instrument panel. The VIN contains 17 characters that provide data concerning the vehicle. Refer to the decoding chart to determine the identification of a vehicle.

To protect the consumer from theft and possible fraud the manufacturer is required to include a Check Digit at the ninth position of the Vehicle Identification Number. The check digit is used by the manufacturer and government agencies to verify the authenticity of the vehicle and official documentation. The formula to use the check digit is not released to the general public.



VEHICLE IDENTIFICATION NUMBER DECODING CHART

POSITION	INTERPRETATION	CODE = DESCRIPTION
1	Country of Origin	1 = Manufactured By DaimlerChrysler Corporation
2	Make	J = Jeep
3	Vehicle Type	4 = MPV Less Side Air Bags 8 = MPV With Side Air Bags
4	Gross Vehicle Weight Rating	G = 5001-6000 lbs.
5	Vehicle Line (WK)	S = Grand Cherokee 4X2 R = Grand Cherokee 4X4
5	Vehicle Line (WH)	C = Grand Cherokee 4X4 (LHD) D = Grand Cherokee 4X4 (RHD)
6	Series	4 = Grand Cherokee LAREDO 5 = Grand Cherokee LIMITED E = 5 Speed Auto
7	Body Style	8 = Sport Utility 4 Door
8	Engine	K = 3.7K 6 cyl. MPI Gasoline N = 4.7L 8 cyl. MPI Gasoline 2 = 5.7L 8 cyl. HEMI Multiple Displacement Gasoline M = 3.0L 6 cyl. Turbo Diesel
9	Check Digit	0 through 9 or X
10	Model Year	5=2005
11	Assembly Plant	C = Jefferson North Assembly Y = Chrysler Steyer Assembly
12 thru 17	Vehicle Build Sequence	

VEHICLE EMISSION CONTROL INFORMATION (VECI)

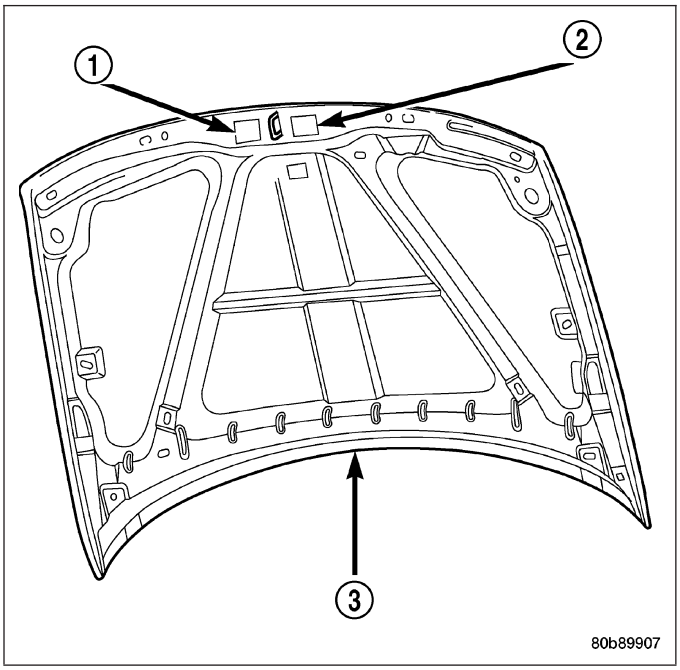
DESCRIPTION

All vehicles are equipped with a combined vehicle emission control information (VECI) label(s). The label is located in the engine compartment on the vehicle hood. Two labels are used for vehicles built for sale in the country of Canada.

The VECI label(s) contain the following:

- Engine family and displacement
- Evaporative family
- Emission control system schematic
- Certification application
- Spark plug and gap

The label also contains an engine vacuum schematic. There are unique labels for vehicles built for sale in the state of California and the country of Canada. Canadian labels are written in both the English and French languages. These labels are permanently attached and cannot be removed without defacing information and destroying label.



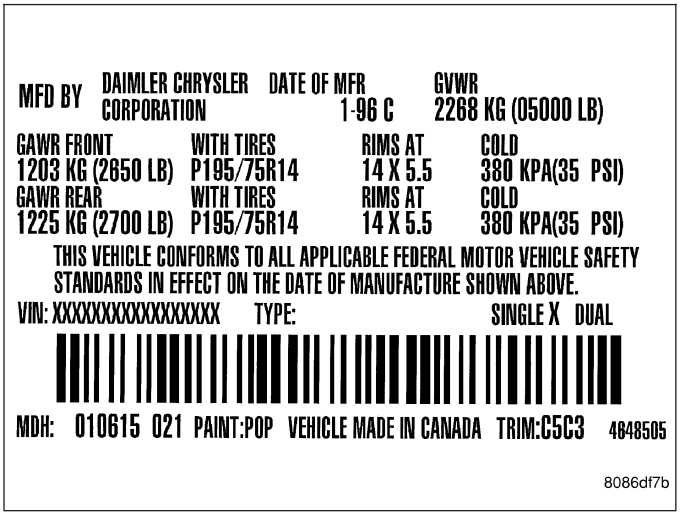
VEHICLE CERTIFICATION LABEL

DESCRIPTION

A vehicle certification label is attached to every DaimlerChrysler Corporation vehicle. The label certifies that the vehicle conforms to all applicable Federal Motor Vehicle Standards. The label also lists:

- Month and year of vehicle manufacture.
- Gross Vehicle Weight Rating (GVWR). The gross front and rear axle weight ratings (GAWR's) are based on a minimum rim size and maximum cold tire inflation pressure.
- Vehicle Identification Number (VIN).
- Type of vehicle.
- Type of rear wheels.
- Bar code.
- Month, Day and Hour (MDH) of final assembly.
- Paint and Trim codes.
- Country of origin.

The label is located on the driver-side door shut-face.


MFD BY DAIMLER CHRYSLER CORPORATION
DATE OF MFR 1-96 C
GVWR 2268 KG (05000 LB)
GAWR FRONT 1203 KG (2650 LB)
WITH TIRES P195/75R14
RIMS AT 14 X 5.5
COLD 380 KPA(35 PSI)
GAWR REAR 1225 KG (2700 LB)
WITH TIRES P195/75R14
RIMS AT 14 X 5.5
COLD 380 KPA(35 PSI)
THIS VEHICLE CONFORMS TO ALL APPLICABLE FEDERAL MOTOR VEHICLE SAFETY STANDARDS IN EFFECT ON THE DATE OF MANUFACTURE SHOWN ABOVE.
VIN: XXXXXXXXXXXXXXXXX TYPE: SINGLE X DUAL
MDH: 010615 021 PAINT:POP VEHICLE MADE IN CANADA TRIM:C5C3 4648505
8086df7b

FASTENER IDENTIFICATION

DESCRIPTION

The SAE bolt strength grades range from grade 2 to grade 8. The higher the grade number, the greater the bolt strength. Identification is determined by the line marks on the top of each bolt head. The actual bolt strength grade corresponds to the number of line marks plus 2. The most commonly used metric bolt strength classes are 9.8 and 10.9. The metric strength class identification number is imprinted on the head of the bolt. The higher the class number, the greater the bolt strength. Some metric nuts are imprinted with a single-digit strength class on the nut face. Refer to the Fastener Identification and Fastener Strength Charts.

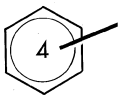
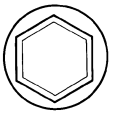
Bolt Markings and Torques - Metric

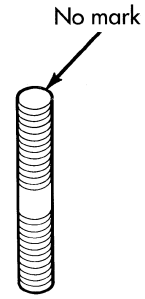
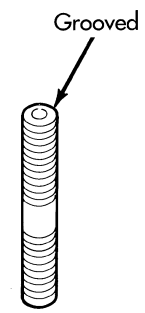
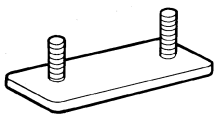
Bolt Markings	8.8/8.9		10.9		12.9	
Bolt Dia.	N·m	Ft. Lbs.	N·m	Ft. Lbs.	N·m	Ft. Lbs.
6	12	105*	14	120*	16	12
8	25	250*	32	23	38	28
10	54	40	60	45	74	55
12	95	70	108	80	135	100
14	155	115	175	130	216	160
16	243	180	324	210	324	240
* Inch Lbs.						

Bolt Markings and Torques - U. S. Customary

Bolt Markings	Grade 5		Grade 8	
Bolt Dia.	N·m	Ft. Lbs	N·m	Ft. Lbs
1/4 - 20	10	95*	14	125*
1/4 - 28	10	95*	17	150*
5/16 - 18	22	200*	30	270*
5/16 - 24	26	240*	33	300*
3/8 - 16	40	30	55	40
3/8 - 24	47	35	60	45
7/16 - 14	68	50	88	65
7/16 - 20	74	55	95	70
1/2 - 13	101	75	135	100
1/2 -20	115	85	150	110
9/16 - 12	135	105	182	135
9/16 - 18	155	115	202	150
5/8 - 11	202	150	263	195
5/8 - 18	215	160	284	210
3/4 - 10	230	170	297	220
3/4 - 16	236	175	304	225
7/8 - 14	405	300	540	400
* Inch Lbs.				

HOW TO DETERMINE BOLT STRENGTH

	Mark	Class
Hexagon head bolt	 Bolt head No. 4 — 4T; 5 — 5T; 6 — 6T; 7 — 7T; 8 — 8T; 9 — 9T; 10 — 10T; 11 — 11T	
	No mark	4T
Hexagon flange bolt w/washer hexagon bolt	 No mark	4T
Hexagon head bolt	Two protruding lines	5T
Hexagon flange bolt w/washer hexagon bolt	Two protruding lines	6T
Hexagon head bolt	Three protruding lines	7T
Hexagon head bolt	Four protruding lines	8T

	Mark	Class
Stud bolt		4T
		6T
Welded bolt		4T

95IN-4

FASTENER USAGE

DESCRIPTION

FASTENER USAGE

WARNING: Use of an incorrect fastener may result in component damage or personal injury.

Fasteners and torque specifications references in this Service Manual are identified in metric and SAE format.

During any maintenance or repair procedures, it is important to salvage all fasteners (nuts, bolts, etc.) for reassembly. If the fastener is not salvageable, a fastener of equivalent specification must be used.

THREADED HOLE REPAIR

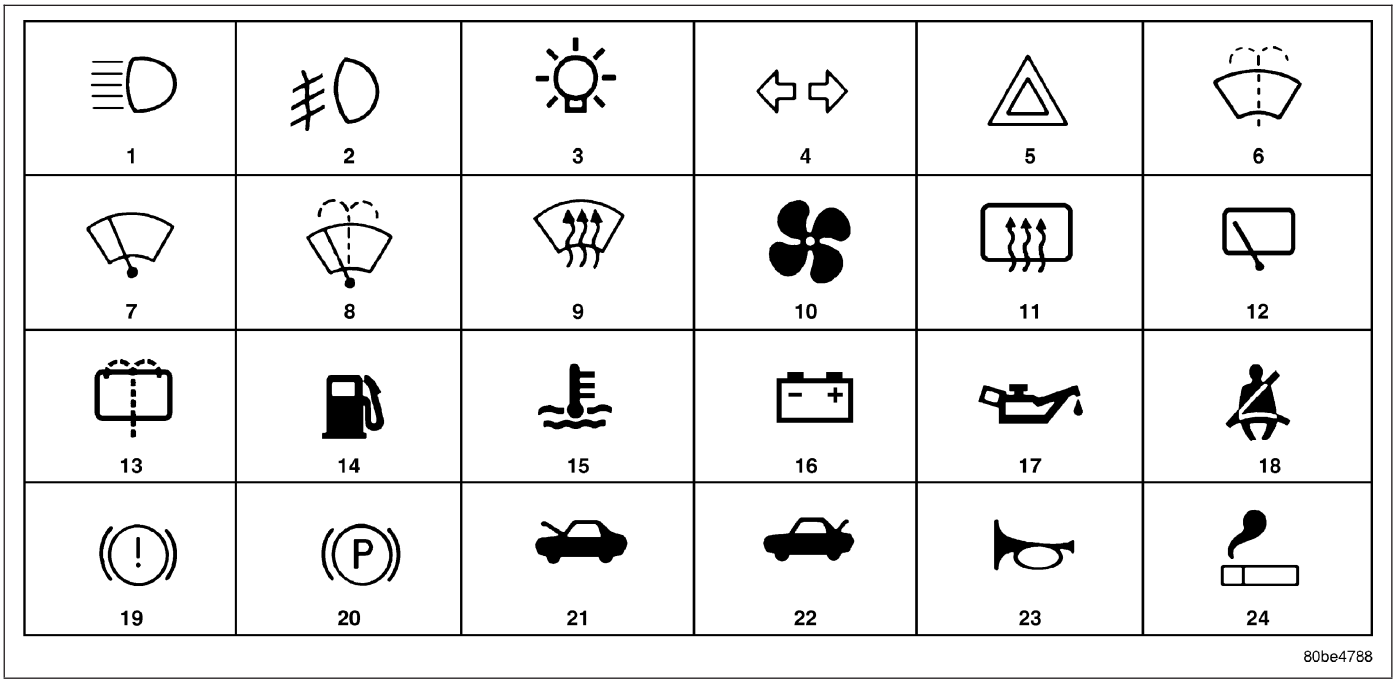
DESCRIPTION

THREADED HOLE REPAIR

Most stripped threaded holes can be repaired using a Helicoil®. Follow the vehicle or Helicoil® recommendations for application and repair procedures.

INTERNATIONAL SYMBOLS

DESCRIPTION - INTERNATIONAL SYMBOLS



The graphic symbols illustrated in the following International Control and Display Symbols Chart are used to identify various instrument controls. The symbols correspond to the controls and displays that are located on the instrument panel.

METRIC SYSTEM

DESCRIPTION

The metric system is based on quantities of one, ten, one hundred, one thousand and one million.

The following chart will assist in converting metric units to equivalent English and SAE units, or vise versa.

CONVERSION FORMULAS AND EQUIVALENT VALUES

MULTIPLY	BY	TO GET	MULTIPLY	BY	TO GET
in-lbs	x 0.11298	= Newton Meters (N·m)	N·m	x 8.851	= in-lbs
ft-lbs	x 1.3558	= Newton Meters (N·m)	N·m	x 0.7376	= ft-lbs
Inches Hg (60° F)	x 3.377	= Kilopascals (kPa)	kPa	x 0.2961	= Inches Hg
psi	x 6.895	= Kilopascals (kPa)	kPa	x 0.145	= psi
Inches	x 25.4	= Millimeters (mm)	mm	x 0.03937	= Inches
Feet	x 0.3048	= Meters (M)	M	x 3.281	= Feet
Yards	x 0.9144	= Meters	M	x 1.0936	= Yards
mph	x 1.6093	= Kilometers/Hr. (Km/h)	Km/h	x 0.6214	= mph
Feet/Sec	x 0.3048	= Meters/Sec (M/S)	M/S	x 3.281	= Feet/Sec
mph	x 0.4470	= Meters/Sec (M/S)	M/S	x 2.237	= mph
Kilometers/Hr. (Km/h)	x 0.27778	= Meters/Sec (M/S)	M/S	x 3.600	Kilometers/Hr. (Km/h)

COMMON METRIC EQUIVALENTS

1 inch = 25 Millimeters	1 Cubic Inch = 16 Cubic Centimeters
1 Foot = 0.3 Meter	1 Cubic Foot = 0.03 Cubic Meter
1 Yard = 0.9 Meter	1 Cubic Yard = 0.8 Cubic Meter
1 Mile = 1.6 Kilometers	

Refer to the Metric Conversion Chart to convert torque values listed in metric Newton- meters (N·m). Also, use the chart to convert between millimeters (mm) and inches (in.).

in-lbs to N•m

in- lb	N•m	in-lb	N•m	in-lb	N•m	in-lb	N•m	in-lb	N•m
2	.2260	42	4.7453	82	9.2646	122	13.7839	162	18.3032
4	.4519	44	4.9713	84	9.4906	124	14.0099	164	18.5292
6	.6779	46	5.1972	86	9.7165	126	14.2359	166	18.7552
8	.9039	48	5.4232	88	9.9425	128	14.4618	168	18.9811
10	1.1298	50	5.6492	90	10.1685	130	14.6878	170	19.2071
12	1.3558	52	5.8751	92	10.3944	132	14.9138	172	19.4331
14	1.5818	54	6.1011	94	10.6204	134	15.1397	174	19.6590
16	1.8077	56	6.3270	96	10.8464	136	15.3657	176	19.8850
18	2.0337	58	6.5530	98	11.0723	138	15.5917	178	20.1110
20	2.2597	60	6.7790	100	11.2983	140	15.8176	180	20.3369
22	2.4856	62	7.0049	102	11.5243	142	16.0436	182	20.5629
24	2.7116	64	7.2309	104	11.7502	144	16.2696	184	20.7889
26	2.9376	66	7.4569	106	11.9762	146	16.4955	186	21.0148
28	3.1635	68	7.6828	108	12.2022	148	16.7215	188	21.2408
30	3.3895	70	7.9088	110	12.4281	150	16.9475	190	21.4668
32	3.6155	72	8.1348	112	12.6541	152	17.1734	192	21.6927
34	3.8414	74	8.3607	114	12.8801	154	17.3994	194	21.9187
36	4.0674	76	8.5867	116	13.1060	156	17.6253	196	22.1447
38	4.2934	78	8.8127	118	13.3320	158	17.8513	198	22.3706
40	4.5193	80	9.0386	120	13.5580	160	18.0773	200	22.5966

N•m to in-lbs

N•m	in-lb	N•m	in-lb	N•m	in-lb	N•m	in-lb	N•m	in-lb
.2	1.7702	4.2	37.1747	8.2	72.5792	12.2	107.9837	16.2	143.3882
.4	3.5404	4.4	38.9449	8.4	74.3494	12.4	109.7539	16.4	145.1584
.6	5.3107	4.6	40.7152	8.6	76.1197	12.6	111.5242	16.6	146.9287
.8	7.0809	4.8	42.4854	8.8	77.8899	12.8	113.2944	16.8	148.6989
1	8.8511	5	44.2556	9	79.6601	13	115.0646	17	150.4691
1.2	10.6213	5.2	46.0258	9.2	81.4303	13.2	116.8348	17.2	152.2393
1.4	12.3916	5.4	47.7961	9.4	83.2006	13.4	118.6051	17.4	154.0096
1.6	14.1618	5.6	49.5663	9.6	84.9708	13.6	120.3753	17.6	155.7798
1.8	15.9320	5.8	51.3365	9.8	86.7410	13.8	122.1455	17.8	157.5500
2	17.7022	6	53.1067	10	88.5112	14	123.9157	18	159.3202
2.2	19.4725	6.2	54.8770	10.2	90.2815	14.2	125.6860	18.5	163.7458
2.4	21.2427	6.4	56.6472	10.4	92.0517	14.4	127.4562	19	168.1714
2.6	23.0129	6.6	58.4174	10.6	93.8219	14.6	129.2264	19.5	172.5970
2.8	24.7831	6.8	60.1876	10.8	95.5921	14.8	130.9966	20	177.0225
3	26.5534	7	61.9579	11	97.3624	15	132.7669	20.5	181.4480
3.2	28.3236	7.2	63.7281	11.2	99.1326	15.2	134.5371	21	185.8736
3.4	30.0938	7.4	65.4983	11.4	100.9028	15.4	136.3073	22	194.7247
3.6	31.8640	7.6	67.2685	11.6	102.6730	15.6	138.0775	23	203.5759
3.8	33.6342	7.8	69.0388	11.8	104.4433	15.8	139.8478	24	212.4270
4	35.4045	8	70.8090	12	106.2135	16	141.6180	25	221.2781

ft-lbs to N•m

ft-lb	N•m	ft-lb	N•m	ft-lb	N•m	ft-lb	N•m	ft-lb	N•m
1	1.3558	21	28.4722	41	55.5885	61	82.7049	81	109.8212
2	2.7116	22	29.8280	42	56.9444	62	84.0607	82	111.1770
3	4.0675	23	31.1838	43	58.3002	63	85.4165	83	112.5328
4	5.4233	24	32.5396	44	59.6560	64	86.7723	84	113.8888
5	6.7791	25	33.8954	45	61.0118	65	88.1281	85	115.2446
6	8.1349	26	35.2513	46	62.3676	66	89.4840	86	116.6004
7	9.4907	27	36.6071	47	63.7234	67	90.8398	87	117.9562
8	10.8465	28	37.9629	48	65.0793	68	92.1956	88	119.3120
9	12.2024	29	39.3187	49	66.4351	69	93.5514	89	120.6678
10	13.5582	30	40.6745	50	67.7909	70	94.9073	90	122.0236
11	14.9140	31	42.0304	51	69.1467	71	96.2631	91	123.3794
12	16.2698	32	43.3862	52	70.5025	72	97.6189	92	124.7352
13	17.6256	33	44.7420	53	71.8583	73	98.9747	93	126.0910
14	18.9815	34	46.0978	54	73.2142	74	100.3316	94	127.4468
15	20.3373	35	47.4536	55	74.5700	75	101.6862	95	128.8026
16	21.6931	36	48.8094	56	75.9258	76	103.0422	96	130.1586
17	23.0489	37	50.1653	57	77.2816	77	104.3980	97	131.5144
18	24.4047	38	51.5211	58	78.6374	78	105.7538	98	132.8702
19	25.7605	39	52.8769	59	79.9933	79	107.1196	99	134.2260
20	27.1164	40	54.2327	60	81.3491	80	108.4654	100	135.5820

N•m to ft-lbs

N•m	ft-lb	N•m	ft-lb	N•m	ft-lb	N•m	ft-lb	N•m	ft-lb
1	.7376	21	15.9888	41	30.2400	61	44.9913	81	59.7425
2	1.4751	22	16.2264	42	30.9776	62	45.7289	82	60.4801
3	2.2127	23	16.9639	43	31.7152	63	46.4664	83	61.2177
4	2.9502	24	17.7015	44	32.4527	64	47.2040	84	61.9552
5	3.6878	25	18.4391	45	33.1903	65	47.9415	85	62.6928
6	4.4254	26	19.1766	46	33.9279	66	48.6791	86	63.4303
7	5.1629	27	19.9142	47	34.6654	67	49.4167	87	64.1679
8	5.9005	28	20.6517	48	35.4030	68	50.1542	88	64.9545
9	6.6381	29	21.3893	49	36.1405	69	50.8918	89	65.6430
10	7.3756	30	22.1269	50	36.8781	70	51.6293	90	66.3806
11	8.1132	31	22.8644	51	37.6157	71	52.3669	91	67.1181
12	8.8507	32	23.6020	52	38.3532	72	53.1045	92	67.8557
13	9.5883	33	24.3395	53	39.0908	73	53.8420	93	68.5933
14	10.3259	34	25.0771	54	39.8284	74	54.5720	94	69.3308
15	11.0634	35	25.8147	55	40.5659	75	55.3172	95	70.0684
16	11.8010	36	26.5522	56	41.3035	76	56.0547	96	70.8060
17	12.5386	37	27.2898	57	42.0410	77	56.7923	97	71.5435
18	13.2761	38	28.0274	58	42.7786	78	57.5298	98	72.2811
19	14.0137	39	28.7649	59	43.5162	79	58.2674	99	73.0187
20	14.7512	40	29.5025	60	44.2537	80	59.0050	100	73.7562

in. to mm

in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
.01	.254	.21	5.334	.41	10.414	.61	15.494	.81	20.574
.02	.508	.22	5.588	.42	10.668	.62	15.748	.82	20.828
.03	.762	.23	5.842	.43	10.922	.63	16.002	.83	21.082
.04	1.016	.24	6.096	.44	11.176	.64	16.256	.84	21.336
.05	1.270	.25	6.350	.45	11.430	.65	16.510	.85	21.590
.06	1.524	.26	6.604	.46	11.684	.66	16.764	.86	21.844
.07	1.778	.27	6.858	.47	11.938	.67	17.018	.87	22.098
.08	2.032	.28	7.112	.48	12.192	.68	17.272	.88	22.352
.09	2.286	.29	7.366	.49	12.446	.69	17.526	.89	22.606
.10	2.540	.30	7.620	.50	12.700	.70	17.780	.90	22.860
.11	2.794	.31	7.874	.51	12.954	.71	18.034	.91	23.114
.12	3.048	.32	8.128	.52	13.208	.72	18.288	.92	23.368
.13	3.302	.33	8.382	.53	13.462	.73	18.542	.93	23.622
.14	3.556	.34	8.636	.54	13.716	.74	18.796	.94	23.876
.15	3.810	.35	8.890	.55	13.970	.75	19.050	.95	24.130
.16	4.064	.36	9.144	.56	14.224	.76	19.304	.96	24.384
.17	3.318	.37	9.398	.57	14.478	.77	19.558	.97	24.638
.18	4.572	.38	9.652	.58	14.732	.78	19.812	.98	24.892
.19	4.826	.39	9.906	.59	14.986	.79	20.066	.99	25.146
.20	5.080	.40	10.160	.60	15.240	.80	20.320	1.00	25.400

mm to in.

mm	in.	mm	in.	mm	in.	mm	in.	mm	in.
.01	.00039	.21	.00827	.41	.01614	.61	.02402	.81	.03189
.02	.00079	.22	.00866	.42	.01654	.62	.02441	.82	.03228
.03	.00118	.23	.00906	.43	.01693	.63	.02480	.83	.03268
.04	.00157	.24	.00945	.44	.01732	.64	.02520	.84	.03307
.05	.00197	.25	.00984	.45	.01772	.65	.02559	.85	.03346
.06	.00236	.26	.01024	.46	.01811	.66	.02598	.86	.03386
.07	.00276	.27	.01063	.47	.01850	.67	.02638	.87	.03425
.08	.00315	.28	.01102	.48	.01890	.68	.02677	.88	.03465
.09	.00354	.29	.01142	.49	.01929	.69	.02717	.89	.03504
.10	.00394	.30	.01181	.50	.01969	.70	.02756	.90	.03543
.11	.00433	.31	.01220	.51	.02008	.71	.02795	.91	.03583
.12	.00472	.32	.01260	.52	.02047	.72	.02835	.92	.03622
.13	.00512	.33	.01299	.53	.02087	.73	.02874	.93	.03661
.14	.00551	.34	.01339	.54	.02126	.74	.02913	.94	.03701
.15	.00591	.35	.01378	.55	.02165	.75	.02953	.95	.03740
.16	.00630	.36	.01417	.56	.02205	.76	.02992	.96	.03780
.17	.00669	.37	.01457	.57	.02244	.77	.03032	.97	.03819
.18	.00709	.38	.01496	.58	.02283	.78	.03071	.98	.03858
.19	.00748	.39	.01535	.59	.02323	.79	.03110	.99	.03898
.20	.00787	.40	.01575	.60	.02362	.80	.03150	1.00	.03937

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TORQUE REFERENCES

DESCRIPTION

Individual Torque Charts appear within many or the Groups. Refer to the Standard Torque Specifications Chart for torque references not listed in the individual torque charts.

SPECIFIED TORQUE FOR STANDARD BOLTS

Class	Diameter mm	Pitch mm	Specified torque					
			Hexagon head bolt			Hexagon flange bolt		
			N•m	kgf-cm	ft-lbf	N•m	kgf-cm	ft-lbf
4T	6	1	5	55	48 in.-lbf	6	60	52 in.-lbf
	8	1.25	12.5	130	9	14	145	10
	10	1.25	26	260	19	29	290	21
	12	1.25	47	480	35	53	540	39
	14	1.5	74	760	55	84	850	61
	16	1.5	115	1,150	83	—	—	—
5T	6	1	6.5	65	56 in.-lbf	7.5	75	65 in.-lbf
	8	1.25	15.5	160	12	17.5	175	13
	10	1.25	32	330	24	36	360	26
	12	1.25	59	600	43	65	670	48
	14	1.5	91	930	67	100	1,050	76
	16	1.5	140	1,400	101	—	—	—
6T	6	1	8	80	69 in.-lbf	9	90	78 in.-lbf
	8	1.25	19	195	14	21	210	15
	10	1.25	39	400	29	44	440	32
	12	1.25	71	730	53	80	810	59
	14	1.5	110	1,100	80	125	1,250	90
	16	1.5	170	1,750	127	—	—	—
7T	6	1	10.5	110	8	12	120	9
	8	1.25	25	260	19	28	290	21
	10	1.25	52	530	38	58	590	43
	12	1.25	95	970	70	105	1,050	76
	14	1.5	145	1,500	108	165	1,700	123
	16	1.5	230	2,300	166	—	—	—
8T	8	1.25	29	300	22	33	330	24
	10	1.25	61	620	45	68	690	50
	12	1.25	110	1,100	80	120	1,250	90
9T	8	1.25	34	340	25	37	380	27
	10	1.25	70	710	51	78	790	57
	12	1.25	125	1,300	94	140	1,450	105
10T	8	1.25	38	390	28	42	430	31
	10	1.25	78	800	58	88	890	64
	12	1.25	140	1,450	105	155	1,600	116
11T	8	1.25	42	430	31	47	480	35
	10	1.25	87	890	64	97	990	72
	12	1.25	155	1,600	116	175	1,800	130

LUBRICATION & MAINTENANCE

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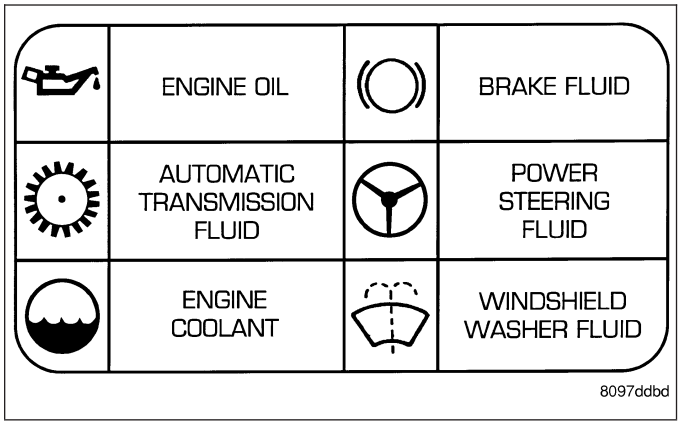
INTERNATIONAL SYMBOLS

DESCRIPTION

DaimlerChrysler Corporation uses international symbols to identify engine compartment lubricant and fluid inspection and fill locations.



PARTS & LUBRICANT RECOMMENDATION

DESCRIPTION

LUBRICANT RECOMMENDATIONS

Chassis

Component	Fluid, Lubricant, or Genuine Part
Steering Gear & Linkage, Ball Joints, Prop Shafts & Yokes, Wheel Bearings	Mopar® Multi-Purpose Lubricant NLGI Grade 2 EP, GC-LB

Body

Component	Fluid, Lubricant, and Genuine Part
Hinges:	
Door & Hood	Mopar® Engine Oil
Swing Gate	Mopar® Multi-Purpose Lube NLGI Grade 2 EP, GC-LB
Latches: Door, Hood/Safety Catch, Swing Gate	Mopar® Multi-Purpose Lube NLGI Grade 2 EP, GC-LB
Seat Regulator & Track	Mopar® Multi-Purpose Lube NLGI Grade 2 EP, GC-LB
Lock Cylinders	Mopar® Lock Cylinder Lube

FLUID TYPES

When service is required, DaimlerChrysler Corporation recommends that only Mopar® brand parts, lubricants and chemicals be used. Mopar® provides the best engineered products for servicing DaimlerChrysler Corporation vehicles.

Only lubricants bearing designations defined by the following organization should be used to service a Chrysler Corporation vehicle.

- Society of Automotive Engineers (SAE)
- American Petroleum Institute (API)
- National Lubricating Grease Institute (NLGI)

API QUALITY CLASSIFICATION

This symbol on the front of an oil container means that the oil has been certified by the American Petroleum Institute (API) to meet all the lubrication requirements specified by DaimlerChrysler Corporation.

9400-9

GEAR LUBRICANTS

SAE ratings also apply to multigrade gear lubricants. In addition, API classification defines the lubricants usage. Such as API GL-5 and SAE 75W-90.

FLUID TYPES

DESCRIPTION

ENGINE OIL

WARNING: NEW OR USED ENGINE OIL CAN BE IRRITATING TO THE SKIN. AVOID PROLONGED OR REPEATED SKIN CONTACT WITH ENGINE OIL. CONTAMINANTS IN USED ENGINE OIL, CAUSED BY INTERNAL COMBUSTION, CAN BE HAZARDOUS TO YOUR HEALTH. THOROUGHLY WASH EXPOSED SKIN WITH SOAP AND WATER. DO NOT WASH SKIN WITH GASOLINE, DIESEL FUEL, THINNER, OR SOLVENTS, HEALTH PROBLEMS CAN RESULT. DO NOT POLLUTE, DISPOSE OF USED ENGINE OIL PROPERLY. CONTACT YOUR DEALER OR GOVERNMENT AGENCY FOR LOCATION OF COLLECTION CENTER IN YOUR AREA.

When service is required, DaimlerChrysler Corporation recommends that only Mopar® brand parts, lubricants and chemicals be used. Mopar® provides the best engineered products for servicing DaimlerChrysler Corporation vehicles.

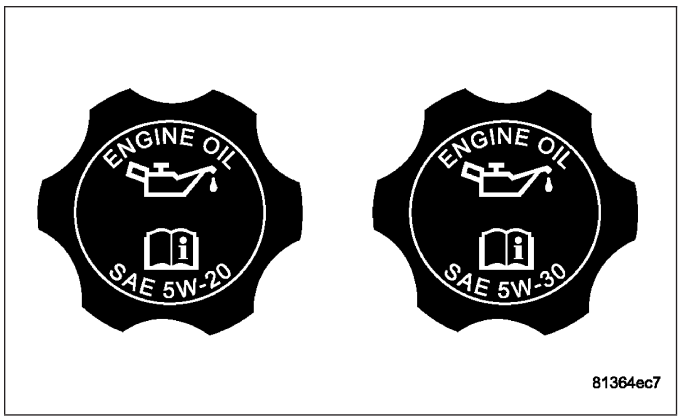
Only lubricants bearing designations defined by the following organization should be used.

- Society of Automotive Engineers (SAE)
- American Petroleum Institute (API)
- National Lubricating Grease Institute (NLGI)
- Association des Constructeurs Européens d' Automobiles (European Automobile Manufacturers Association) (ACEA)

API SERVICE GRADE CERTIFIED

Use an engine oil that is API Certified. MOPAR® provides engine oils, that meet or exceed this requirement.

SAE VISCOSITY



An SAE viscosity grade is used to specify the viscosity of engine oil. Use only engine oils with multiple viscosities such as 5W-30 or 10W-30. These are specified with a dual SAE viscosity grade which indicates the cold-to-hot temperature viscosity range. **For 3.7L/4.7L engines SAE 5W-30 engine oil is recommended for all operating temperatures. For 5.7L engines, SAE 5W-20 engine oil is recommended for all operating temperatures. Vehicles with 5.7L engines equipped with Multiple Displacement System, (MDS), must use SAE 5W-20 oil. Failure to do so may result in improper operation of the Multiple Displacement System (MDS).These engine oils improve low temperature starting and vehicle fuel economy. Refer to your engine oil filler cap for the recommended engine oil viscosity for your vehicle.**

ACEA Categories

For countries that use the ACEA European Oil Categories for Service Fill Oils, use engine oils that meet the requirements of ACEA A1/B1, A2/B2, or A3/B3.

ENERGY CONSERVING OIL

An Energy Conserving type oil is recommended for gasoline engines. The designation of ENERGY CONSERVING is located on the label of an engine oil container.

CONTAINER IDENTIFICATION

Standard engine oil identification notations have been adopted to aid in the proper selection of engine oil. The identifying notations are located on the front label of engine oil plastic bottles and the top of engine oil cans.

This symbol means that the oil has been certified by the American Petroleum Institute (API). Diamler-Chrysler only recommend API Certified engine oils. Use Mopar® engine oil or equivalent.

9400-9

SYNTHETIC ENGINE OILS

There are a number of engine oils being promoted as either synthetic or semi-synthetic. If you chose to use such a product, use **only** those oils that meet the American Petroleum Institute (API) and SAE viscosity standard. Follow the service schedule that describes your driving type.

ENGINE OIL ADDITIVES/SUPPLEMENTS

The manufacturer **does not recommend** the addition of any engine oil additives/supplements to the specified engine oil. Engine oil additives/supplements should not be used to enhance engine oil performance. Engine oil additives/supplements should not be used to extend engine oil change intervals. No additive is known to be safe for engine durability and can degrade emission components. Additives can contain undesirable materials that harm the long term durability of engines by:

- Doubling the level of Phosphorus in the engine oil. The ILSAC (International Lubricant Standard Approval Committee) GF-2 and GF-3 standards require that engine oil contain no more than 0.10% Phosphorus to protect the vehicles emissions performance. Addition of engine oil additives/supplements can poison, from the added sulfur and phosphorus, catalysts and hinder efforts to guarantee emissions performance to 80,000 miles.
- Altering the viscosity characteristics of the engine oil so that it no longer meets the requirements of the specified viscosity grade.
- Creating potential for an undesirable additive compatibility interaction in the engine crankcase. Generally it is not desirable to mix additive packages from different suppliers in the crankcase; there have been reports of low temperature engine failures caused by additive package incompatibility with such mixtures.

GEAR LUBRICANTS

SAE ratings also apply to multigrade gear lubricants. In addition, API classification defines the lubricants usage. Such as API GL-5 and SAE 75W-90.

ENGINE COOLANT

ETHYLENE-GLYCOL MIXTURES

CAUTION: Richer antifreeze mixtures cannot be measured with normal field equipment and can cause problems associated with 100 percent ethylene-glycol.

The required ethylene-glycol (antifreeze) and water mixture depends upon the climate and vehicle operating conditions. The recommended mixture of 50/50 ethylene-glycol and water will provide protection against freezing to -37° C (-35° F). The antifreeze concentration **must always** be a minimum of 44 percent, year-round in all climates. **If percentage is lower than 44 percent, engine parts may be eroded by cavitation, and cooling system components may be severely damaged by corrosion.** Maximum protection against freezing is provided with a 68 percent antifreeze concentration, which prevents freezing down to -67.7° C (-90° F). A higher percentage will freeze at a warmer temperature. Also, a higher percentage of antifreeze can cause the engine to overheat because the specific heat of antifreeze is lower than that of water.

Use of 100 percent ethylene-glycol will cause formation of additive deposits in the system, as the corrosion inhibitive additives in ethylene-glycol require the presence of water to dissolve. The deposits act as insulation, causing temperatures to rise to as high as 149° C (300° F). This temperature is hot enough to melt plastic and soften solder. The increased temperature can result in engine detonation. In addition, 100 percent ethylene-glycol freezes at 22° C (-8° F).

PROPYLENE-GLYCOL MIXTURES

It's overall effective temperature range is smaller than that of ethylene-glycol. The freeze point of 50/50 propylene-glycol and water is -32° C (-26° F). 5° C higher than ethylene-glycol's freeze point. The boiling point (protection against summer boil-over) of propylene-glycol is 125° C (257° F) at 96.5 kPa (14 psi), compared to 128° C (263° F) for ethylene-glycol. Use of propylene-glycol can result in boil-over or freeze-up on a cooling system designed for ethylene-glycol. Propylene glycol also has poorer heat transfer characteristics than ethylene glycol. This can increase cylinder head temperatures under certain conditions.

Propylene-glycol/ethylene-glycol Mixtures can cause the destabilization of various corrosion inhibitors, causing damage to the various cooling system components. Also, once ethylene-glycol and propylene-glycol based coolants are mixed in the vehicle, conventional methods of determining freeze point will not be accurate. Both the refractive index and specific gravity differ between ethylene glycol and propylene glycol.

HOAT COOLANT

WARNING: ANTIFREEZE IS AN ETHYLENE-GLYCOL BASE COOLANT AND IS HARMFUL IF SWALLOWED OR INHALED. IF SWALLOWED, DRINK TWO GLASSES OF WATER AND INDUCE VOMITING. IF INHALED, MOVE TO FRESH AIR AREA. SEEK MEDICAL ATTENTION IMMEDIATELY. DO NOT STORE IN OPEN OR UNMARKED CONTAINERS. WASH SKIN AND CLOTHING THOROUGHLY AFTER COMING IN CONTACT WITH ETHYLENE-GLYCOL. KEEP OUT OF REACH OF CHILDREN. DISPOSE OF GLYCOL BASE COOLANT PROPERLY, CONTACT YOUR DEALER OR GOVERNMENT AGENCY FOR LOCATION OF COLLECTION CENTER IN YOUR AREA. DO NOT OPEN A COOLING SYSTEM WHEN THE ENGINE IS AT OPERATING TEMPERATURE OR HOT UNDER PRESSURE, PERSONAL INJURY CAN RESULT. AVOID RADIATOR COOLING FAN WHEN ENGINE COMPARTMENT RELATED SERVICE IS PERFORMED, PERSONAL INJURY CAN RESULT.

CAUTION: Use of Propylene-Glycol based coolants is not recommended, as they provide less freeze protection and less corrosion protection.

The cooling system is designed around the coolant. The coolant must accept heat from engine metal, in the cylinder head area near the exhaust valves and engine block. Then coolant carries the heat to the radiator where the tube/fin radiator can transfer the heat to the air.

The use of aluminum cylinder blocks, cylinder heads, and water pumps requires special corrosion protection. Mopar® Antifreeze/Coolant, 5 Year/100,000 Mile Formula (MS-9769), or the equivalent ethylene-glycol base coolant with organic corrosion inhibitors (called HOAT, for Hybrid Organic Additive Technology) is recommended. This coolant offers the best engine cooling without corrosion when mixed with 50% ethylene-glycol and 50% distilled water to obtain a freeze point of -37°C (-35°F). If it loses color or becomes contaminated, drain, flush, and replace with fresh properly mixed coolant solution.

CAUTION: Mopar® Antifreeze/Coolant, 5 Year/100,000 Mile Formula (MS-9769) may not be mixed with any other type of antifreeze. Mixing of coolants other than specified (non-HOAT or other HOAT), may result in engine damage that may not be covered under the new vehicle warranty, and decreased corrosion protection.

COOLANT PERFORMANCE

The required ethylene-glycol (antifreeze) and water mixture depends upon climate and vehicle operating conditions. The coolant performance of various mixtures follows:

Pure Water- Water can absorb more heat than a mixture of water and ethylene-glycol. This is for purpose of heat transfer only. Water also freezes at a higher temperature and allows corrosion.

100 percent Ethylene-Glycol - The corrosion inhibiting additives in ethylene-glycol need the presence of water to dissolve. Without water, additives form deposits in system. These act as insulation causing temperature to rise to as

high as 149°C (300°F). This temperature is hot enough to melt plastic and soften solder. The increased temperature can result in engine detonation. In addition, 100 percent ethylene-glycol freezes at -22°C (-8°F).

50/50 Ethylene-Glycol and Water - Is the recommended mixture, it provides protection against freezing to -37°C (-34°F). The antifreeze concentration **must always** be a minimum of 44 percent, year-round in all climates. If percentage is lower, engine parts may be eroded by cavitation. Maximum protection against freezing is provided with a 68 percent antifreeze concentration, which prevents freezing down to -67.7°C (-90°F). A higher percentage will freeze at a warmer temperature. Also, a higher percentage of antifreeze can cause the engine to overheat because specific heat of antifreeze is lower than that of water.

CAUTION: Richer antifreeze mixtures cannot be measured with normal field equipment and can cause problems associated with 100 percent ethylene-glycol.

COOLANT SELECTION AND ADDITIVES

The use of aluminum cylinder blocks, cylinder heads and water pumps requires special corrosion protection. Only Mopar® Antifreeze/Coolant, 5 Year/100,000 Mile Formula (glycol base coolant with corrosion inhibitors called HOAT, for Hybrid Organic Additive Technology) is recommended. This coolant offers the best engine cooling without corrosion when mixed with 50% distilled water to obtain to obtain a freeze point of -37°C (-35°F). If it loses color or becomes contaminated, drain, flush, and replace with fresh properly mixed coolant solution.

CAUTION: Do not use coolant additives that are claimed to improve engine cooling.

AXLE

NOTE: DaimlerChrysler recommends using Mopar® lubricants or lubricants of equal quality

FRONT AXLE

- 200MM - Mopar® Synthetic Gear Lubricant 75W-140

REAR AXLE

- 213MM - Mopar® Synthetic Gear Lubricant 75W-140

NOTE: Vari-lok® equipped axles require 118 ml (4 ounces) of Limited Slip Additive be added to the lubricant.

TRANSFER CASE

Recommended lubricant for the NV140 transfer case is Mopar® ATF+4, Automatic Transmission Fluid. Recommended lubricant for the NV245 transfer case is Mopar® NV245/247 Transfer Case Fluid.

AUTOMATIC TRANSMISSION FLUID

NOTE: Refer to Service Procedures in this group for fluid level checking procedures.

Mopar® ATF +4, Automatic Transmission Fluid is the recommended fluid for DaimlerChrysler automatic transmissions.

Dexron II fluid IS NOT recommended. Clutch chatter can result from the use of improper fluid.

Mopar® ATF +4, Automatic Transmission Fluid when new is red in color. The ATF is dyed red so it can be identified from other fluids used in the vehicle such as engine oil or antifreeze. The red color is not permanent and is not an indicator of fluid condition. As the vehicle is driven, the ATF will begin to look darker in color and may eventually become brown. **This is normal.** ATF+4 also has a unique odor that may change with age. Consequently, odor and color cannot be used to indicate the fluid condition or the need for a fluid change.

FLUID ADDITIVES

DaimlerChrysler strongly recommends against the addition of any fluids to the transmission, other than those automatic transmission fluids listed above. Exceptions to this policy are the use of special dyes to aid in detecting fluid leaks.

Various “special” additives and supplements exist that claim to improve shift feel and/or quality. These additives and others also claim to improve converter clutch operation and inhibit overheating, oxidation, varnish, and sludge. These claims have not been supported to the satisfaction of DaimlerChrysler and these additives **must not be used.** The use of transmission “sealers” should also be avoided, since they may adversely affect the integrity of transmission seals.

POWER STEERING FLUID

This system requires the use of hydraulic system/power steering fluid which meets Daimler Chrysler specification MS-10838, such as Mopar part number 05142893AA, or equivalent, DO NOT MIX POWER STEERING FLUID TYPES. Damage may result to the power steering pump and system if any other fluid is used, and DO NOT OVER-FILL.

OPERATION - AUTOMATIC TRANSMISSION FLUID

The automatic transmission fluid is selected based upon several qualities. The fluid must provide a high level of protection for the internal components by providing a lubricating film between adjacent metal components. The fluid must also be thermally stable so that it can maintain a consistent viscosity through a large temperature range. If the viscosity stays constant through the temperature range of operation, transmission operation and shift feel will remain consistent. Transmission fluid must also be a good conductor of heat. The fluid must absorb heat from the internal transmission components and transfer that heat to the transmission case.

FLUID CAPACITIES

SPECIFICATIONS - FLUID CAPACITIES

DESCRIPTION	SPECIFICATION
FUEL TANK	20 U.S. Gallons (76 Liters)****
Engine Oil - with Filter - 3.7L	4.7 L (5.0 qts.)
Engine Oil - with Filter - 4.7L	5.6 L (6.0 qts.)
Engine Oil - with Filter - 5.7L	6.6 L (7.0 qts.)
Cooling System - 3.7L	10.0 L (9 qts.)***
Cooling System - 4.7L	13.7 L (14.5 qts.)***
Cooling System - 5.7L	13.7 L (14.5 qts.)***
POWER STEERING SYSTEM	
Power steering fluid capacities are dependent on engine/chassis options as well as steering gear/cooler options. Depending on type and size of internal cooler, length and inside diameter of cooler lines, or use of an auxiliary cooler, these capacities may vary. Refer to 19, Steering for proper fill and bleed procedures.	
AUTOMATIC TRANSMISSION	
Service Fill - 545RFE	2WD - 5.2 L (11 pts.) 4WD - 6.2 L (13 pts.)
Service Fill - NAG1	5.0 L (10.6 pts.)
O-haul Fill - 545RFE	13.33 L (28.0 pts.)
O-haul Fill - NAG1	7.7 L (16.3 pts)
Dry fill capacity Depending on type and size of internal cooler, length and inside diameter of cooler lines, or use of an auxiliary cooler, these figures may vary. (Refer to appropriate 21 - TRANSMISSION/AUTOMATIC/FLUID - STANDARD PROCEDURE).	
TRANSFER CASE	
NV140	0.65L (1.4 pts.)
NV245	1.8L (3.8 pts.)

DESCRIPTION	SPECIFICATION
FRONT AXLE ± 0.3 L (2 oz.)	
C200F	1.7 L (57.5 oz.)
C200FE	1.7 L (57.5 oz.)
REAR AXLE ± 0.3 L (2 oz.)	
C213R	2.07 L (70 oz.)*
C213RE	2.24L (75.5 oz.)
*Vari-Lok, add 0.07 L (2.5 oz.) of Friction Modifier.	
*** Includes 0.9L (1.0 qts.) for coolant reservoir.	
****Nominal refill capacities are shown. A variation may be observed from vehicle to vehicle due to manufacturing tolerance and refill procedure.	

FLUID FILL/CHECK LOCATIONS

INSPECTION - FLUID FILL/CHECK LOCATIONS

The fluid fill/check locations and lubrication points are located in each applicable group.

MAINTENANCE SCHEDULES

DESCRIPTION

MAINTENANCE SCHEDULES

There are two maintenance schedules that show the **required** service for your vehicle.

First is Schedule **"B"**. It is for vehicles that are operated under the conditions that are listed below and at the beginning of the schedule.

- Day or night temperatures are below 32°F (0°C)
- Stop and go driving
- Excessive engine idling
- Driving in dusty conditions
- Short trips of less than 10 miles (16.2 km)
- More than 50% of your driving is at sustained high speeds during hot weather, above 90°F (32°C)
- Trailer towing
- Taxi, police, or delivery service (commercial service)
- Off-road or desert driving
- **If equipped for and operated with E-85 (ethanol) fuel.**

NOTE: Most vehicles are operated under the conditions listed for Schedule "B."

NOTE: If ANY of these apply to you, change your engine oil every 3,000 miles (5 000 km) or 3 months, whichever comes first, and follow the maintenance recommendations in "Maintenance Schedule B."

NOTE: If ANY of these apply to you then flush and replace your engine coolant every 102,000 miles (163 000 km) or 60 months, whichever comes first, and follow "Schedule B" of the "Maintenance Schedules" section of this manual.

Second is Schedule **"A"**. It is for vehicles that are not operated under any of the conditions listed under Schedule "B."

Use the schedule that best describes your driving conditions. Where time and mileage are listed, follow the interval that occurs first.

CAUTION: Failure to perform the required maintenance items may result in damage to the vehicle.

At Each Stop for Fuel

- Check the engine oil level about 5 minutes after a fully warmed engine is shut off. Checking the oil level while the vehicle is on level ground will improve the accuracy of the oil level reading. Add oil only when the level is at or below the ADD or MIN mark.
- Check the windshield washer solvent, add as required.

Once a Month

- Check the tire pressure and look for unusual wear or damage.
- Inspect the battery and clean and tighten the terminals as required.
- Check the fluid levels of the coolant reservoir, brake master cylinder, and transmission, and add as needed.
- Check all lights and all other electrical items for correct operation.

At Each Oil Change

- Change the engine oil filter.
- Inspect the exhaust system.
- Inspect brake hoses.
- Check the engine coolant/anti-freeze level, hoses, and clamps.
- After completion of off-road operation, the underside of the vehicle should be thoroughly inspected. Examine threaded fasteners for looseness.

Schedule “B”

Follow this schedule if you usually operate your vehicle under one or more of the following conditions.

- Day or night temperatures are below 32°F (0°C)
- Stop and go driving
- Excessive engine idling
- Driving in dusty conditions
- Short trips of less than 10 miles (16.2 km)
- More than 50% of your driving is at sustained high speeds during hot weather, above 90°F (32°C)
- Trailer towing
- Taxi, police, or delivery service (commercial service)
- Off-road or desert driving
- **If equipped for and operated with E-85 (ethanol) fuel.**

NOTE: If ANY of these apply to you, change your engine oil every 3,000 miles (5 000 km) or 3 months, whichever comes first, and follow the maintenance recommendations in “Maintenance Schedule B.”

NOTE: If ANY of these apply to you then flush and replace your engine coolant every 102,000 miles (163 000 km) or 60 months, whichever comes first, and follow “Schedule B” of the “Maintenance Schedules” section of this manual.

Miles **(Kilometers)**	**3,000** **(5 000)**	**6,000** **(10 000)**	**9,000** **(14 000)**	**12,000** **(19 000)**	**15,000** **(24 000)**
Change the engine oil and engine oil filter, if not replaced at 3 months.	X	X	X	X	X
Rotate the tires.		X		X	
Inspect the engine air cleaner filter, replace if necessary.					X
Lubricate the upper knuckle ball stud at steering & suspension ball joints.		X		X	
Drain and refill the front and rear axles.				X	
Inspect the brake linings.				X	
Clean and lubricate the brake caliper pins.				X	

Miles	**18,000**	**21,000**	**24,000**	**27,000**	**30,000**
(Kilometers)	**(29 000)**	**(34 000)**	**(38 000)**	**(43 000)**	**(48 000)**
Change the engine oil and engine oil filter, if not replaced at 3 months.	X	X	X	X	X
Rotate the tires.	X		X		X
Inspect the engine air cleaner filter, replace if necessary.					X
Inspect the PCV Valve, replace if necessary. ◇					X
Replace the spark plugs.					X
Lubricate the upper knuckle ball stud at steering & suspension ball joints.	X		X		X
Drain and refill the front and rear axles.			X		
Inspect the brake linings.			X		
Clean and lubricate the brake caliper pins.			X		
Drain the transfer case and refill.					X

Miles	**33,000**	**36,000**	**39,000**	**42,000**	**45,000**
(Kilometers)	**(53 000)**	**(58 000)**	**(62 000)**	**(67 000)**	**(72 000)**
Change the engine oil and engine oil filter, if not replaced at 3 months.	X	X	X	X	X
Rotate the tires.		X		X	
Inspect the engine air cleaner filter, replace if necessary.					X
Drain and refill the front and rear axles.		X			
Inspect the brake linings.		X			
Lubricate the upper knuckle ball stud at steering & suspension ball joints.		X		X	
Clean and lubricate the brake caliper pins.		X			

Miles	**48,000**	**51,000**	**54,000**	**57,000**	**60,000**
(Kilometers)	**(77 000)**	**(82 000)**	**(86 000)**	**(91 000)**	**(96 000)**
Change the engine oil and engine oil filter, if not replaced at 3 months.	X	X	X	X	X
Rotate the tires.	X		X		X
Inspect the engine air cleaner filter, replace if necessary.					X
Inspect the PCV Valve, replace if necessary. ◇					X
Replace the spark plugs.					X
Inspect the ignition cables, replace if necessary (5.7L Only).					X
Inspect drive belt, replace if necessary.					X
Lubricate the upper knuckle ball stud at steering & suspension ball joints.	X		X		X
Clean and lubricate brake caliper pins.	X				X
Inspect the brake linings.	X				X
Drain and refill the front and rear axles.	X				X
Drain and refill the automatic transmission fluid, and replace main sump filter (4.7L/5.7L Only).‡					X

Miles **(Kilometers)**	**48,000** **(77 000)**	**51,000** **(82 000)**	**54,000** **(86 000)**	**57,000** **(91 000)**	**60,000** **(96 000)**
Drain and refill the transfer case fluid.					X
Flush and replace engine coolant/anti-freeze at 60 months, if not done at 102,000 miles (163 000 km).					X

NOTE: ‡ Applies only if vehicle is used for frequent trailer towing, or fleet/commercial service.

Miles **(Kilometers)**	**63,000** **(101 000)**	**66,000** **(106 000)**	**69,000** **(110 000)**	**72,000** **(115 000)**	**75,000** **(120 000)**
Change the engine oil and engine oil filter, if not replaced at 3 months.	X	X	X	X	X
Rotate the tires.		X		X	
Inspect the engine air cleaner filter, replace if necessary.					X
Inspect the drive belt, replace if necessary.					X
Lubricate the upper knuckle ball stud at steering & suspension ball joints.		X		X	
Inspect the brake linings.				X	
Clean and lubricate the brake caliper pins.				X	
Drain and refill the front and rear axle fluid.				X	

Miles **(Kilometers)**	**78,000** **(125 000)**	**81,000** **(130 000)**	**84,000** **(134 000)**	**87,000** **(139 000)**	**90,000** **(144 000)**
Change the engine oil and engine oil filter, if not replaced at 3 months.	X	X	X	X	X
Rotate the tires.	X		X		X
Inspect the engine air cleaner filter, replace if necessary.					X
Inspect the PCV Valve, replace if necessary. ◊					X
Replace the spark plugs.					X
Inspect the drive belt, replace if necessary.					X
Lubricate the upper knuckle ball stud at steering & suspension ball joints.	X		X		X
Drain and refill the transfer case fluid.					X
Inspect the brake linings.			X		
Clean and lubricate the brake caliper pins.			X		
Drain and refill the front and rear axle fluid.			X		

Miles (Kilometers)	**93,000** (149 000)	**96,000** (154 000)	**99,000** (158 000)	**102,000** (163 000)	**105,000** (168 000)
Change the engine oil and engine oil filter, if not replaced at 3 months.	X	X	X	X	X
Rotate the tires.		X		X	
Inspect the engine air cleaner filter, replace if necessary.					X
Inspect the drive belt, replace if necessary.					X
Lubricate the upper knuckle ball stud at steering & suspension ball joints.		X		X	
Inspect the brake linings.		X			
Clean and lubricate the brake caliper pins.		X			
Drain and refill the front and rear axle fluid.		X			
Flush and replace the engine coolant/anti-freeze, if not done at 60 months.				X	

Miles (Kilometers)	**108,000** (173 000)	**111,000** (178 000)	**114,000** (182 000)	**117,000** (187 000)	**120,000** (192 000)
Change the engine oil and engine oil filter, if not replaced at 3 months.	X	X	X	X	X
Rotate the tires.	X		X		X
Inspect the engine air cleaner filter, replace if necessary.					X
Inspect the PCV Valve, replace if necessary. ♢					X
Replace the spark plugs.					X
Inspect the ignition cables, replace if necessary (5.7L Only).					X
Inspect the drive belt, replace if necessary.					X
Lubricate the upper knuckle ball stud at steering & suspension ball joints.	X		X		X
Inspect the brake linings.	X				X
Clean and lubricate the brake caliper pins.	X				X
Drain and refill the front and rear axle fluid.	X				X
Drain and refill the automatic transmission fluid, replace main sump filter, and spin-on cooler return filter (if equipped). (4.7L/5.7L Only).‡					X
Drain and refill the transfer case fluid.					X
Flush and replace the engine coolant/anti-freeze at 120 months, if not replaced at 102,000 miles (163 000 km).					X

NOTE: ‡ Applies only if vehicle is used for frequent trailer towing, or fleet/commercial service.

Inspection and service should also be performed anytime a malfunction is observed or suspected. Retain all receipts.

♢ This maintenance is recommended by the manufacturer to the owner, but is not required to maintain emissions warranty.

Schedule "A"

Miles **(Kilometers)** **[Months]**	**6,000** **(10 000)** **[6]**	**12,000** **(19 000)** **[12]**	**18,000** **(29 000)** **[18]**	**24,000** **(38 000)** **[24]**	**30,000** **(48 000)** **[30]**
Change the engine oil and engine oil filter.	X	X	X	X	X
Rotate the tires.	X	X	X	X	X
Inspect the engine air cleaner filter, and replace if necessary.					X
Replace the spark plugs.					X
Lubricate the upper knuckle ball stud at steering & suspension ball joints.		X		X	
Inspect the brake linings.			X		
Clean and lubricate the brake caliper pins.			X		
Drain the transfer case and refill.					X

Miles **(Kilometers)** **[Months]**	**36,000** **(58 000)** **[36]**	**42,000** **(67 000)** **[42]**	**48,000** **(77 000)** **[48]**	**54, 000** **(86 000)** **[54]**
Change the engine oil and engine oil filter.	X	X	X	X
Rotate the tires.	X	X	X	X
Inspect the brake linings.	X			X
Lubricate the upper knuckle ball stud at steering & suspension ball joints.	X		X	
Clean and lubricate the brake caliper pins.	X			X

Miles **(Kilometers)** **[Months]**	**60,000** **(96 000)** **[60]**	**66,000** **(106 000)** **[66]**	**72,000** **(115 000)** **[72]**	**78,000** **(125 000)** **[78]**
Change the engine oil and engine oil filter.	X	X	X	X
Rotate the tires.	X	X	X	X
Inspect the engine air cleaner filter, and replace if necessary.	X			
Inspect the PCV Valve, replace if necessary. ◇	X			
Replace the spark plugs.	X			
Inspect the ignition cables, replace if necessary (5.7L Only).	X			
Inspect the drive belt, replace if necessary.	X			
Lubricate the upper knuckle ball stud at steering & suspension ball joints.	X		X	
Flush and replace the engine coolant/anti-freeze, at 60 months if not done at 102,000 miles (163 000 km).	X			
Inspect the brake linings.			X	
Clean and lubricate the brake caliper pins.			X	
Drain the transfer case and refill.	X			

Miles **(Kilometers)** **[Months]**	**84,000** **(134 000)** **[84]**	**90,000** **(144 000)** **[90]**	**96,000** **(154 000)** **[96]**	**102, 000** **(163 000)** **[102]**
Change the engine oil and engine oil filter.	X	X	X	X
Rotate the tires.	X	X	X	X
Inspect the engine air cleaner filter, and replace if necessary.		X		
Inspect the PCV Valve, replace if necessary. ◊		X		
Replace the spark plugs.		X		
Inspect the drive belt, replace if necessary.		X		
Lubricate the upper knuckle ball stud at steering & suspension ball joints.	X		X	
Clean and lubricate the brake caliper pins.		X		
Inspect the brake linings.		X		
Flush and replace the engine coolant/anti-freeze if not replaced at 60 months.				X
Drain the transfer case and refill.		X		

Miles **(Kilometers)** **[Months]**	**108,000** **(173 000)** **[108]**	**114,000** **(182 000)** **[114]**	**120,000** **(192 000)** **[120]**
Change the engine oil and engine oil filter.	X	X	X
Rotate the tires.	X	X	X
Inspect the engine air cleaner filter, and replace if necessary.			X
Inspect the PCV Valve, replace if necessary. ◊			X
Replace the spark plugs.			X
Inspect the ignition cables, replace if necessary (5.7L Only).			X
Inspect the drive belt, replace if necessary.			X
Lubricate the upper knuckle ball stud at steering & suspension ball joints.	X		X
Inspect the brake linings.	X		
Clean and lubricate the brake caliper pins.	X		
Flush and replace the engine coolant/anti-freeze if not done at 102,000 miles (163 000 km).			X
Drain the transfer case and refill.			X

Inspection and service should also be performed anytime a malfunction is observed or suspected. Retain all receipts.

◊ This maintenance is recommended by the manufacturer to the owner, but is not required to maintain emissions warranty.

WARNING: You can be badly injured working on or around a motor vehicle. Do only that service work for which you have the proper equipment. If you have any doubt about your ability to perform a service job, take your vehicle to a competent mechanic.

MAINTENANCE SCHEDULES - GASOLINE ENGINES - EXPORT

There are two maintenance schedules that show the **required** service for your vehicle.

First is Schedule **"B"**. It is for vehicles that are operated under the conditions that are listed below and at the beginning of the schedule.

- Day or night temperatures are below 32°F (0°C)
- Stop and go driving
- Excessive engine idling
- Driving in dusty conditions
- Short trips of less than 10 miles (16.2 km)
- More than 50% of your driving is at sustained high speeds during hot weather, above 90°F (32°C)
- Trailer towing
- Taxi, police, or delivery service (commercial service)
- Off-road or desert driving
- **If equipped for and operated with E-85 (ethanol) fuel.**

NOTE: Most vehicles are operated under the conditions listed for Schedule "B."

NOTE: If ANY of these apply to you, change your engine oil every 3,000 miles (5 000 km) or 3 months, whichever comes first, and follow the maintenance recommendations in "Maintenance Schedule B."

NOTE: If ANY of these apply to you then flush and replace your engine coolant every 102,000 miles (163 000 km) or 60 months, whichever comes first, and follow "Schedule B" of the "Maintenance Schedules" section of this manual.

Second is Schedule **"A"**. It is for vehicles that are not operated under any of the conditions listed under Schedule "B."

Use the schedule that best describes your driving conditions. Where time and mileage are listed, follow the interval that occurs first.

CAUTION: Failure to perform the required maintenance items may result in damage to the vehicle.

At Each Stop for Fuel

- Check the engine oil level about 5 minutes after a fully warmed engine is shut off. Checking the oil level while the vehicle is on level ground will improve the accuracy of the oil level reading. Add oil only when the level is at or below the ADD or MIN mark.
- Check the windshield washer solvent, add as required.

Once a Month

- Check the tire pressure and look for unusual wear or damage.
- Inspect the battery and clean and tighten the terminals as required.
- Check the fluid levels of the coolant reservoir, brake master cylinder, and transmission, and add as needed.
- Check all lights and all other electrical items for correct operation.

At Each Oil Change

- Change the engine oil filter.
- Inspect the exhaust system.
- Inspect brake hoses.
- Check the engine coolant/anti-freeze level, hoses, and clamps.
- After completion of off-road operation, the underside of the vehicle should be thoroughly inspected. Examine threaded fasteners for looseness.

Schedule "B"

Follow this schedule if you usually operate your vehicle under one or more of the following conditions.

- Day or night temperatures are below 32°F (0°C)
- Stop and go driving
- Excessive engine idling
- Driving in dusty conditions
- Short trips of less than 10 miles (16.2 km)
- More than 50% of your driving is at sustained high speeds during hot weather, above 90°F (32°C)
- Trailer towing
- Taxi, police, or delivery service (commercial service)
- Off-road or desert driving
- **If equipped for and operated with E-85 (ethanol) fuel.**

NOTE: If ANY of these apply to you, change your engine oil every 3,000 miles (5 000 km) or 3 months, whichever comes first, and follow the maintenance recommendations in "Maintenance Schedule B."

NOTE: If ANY of these apply to you then flush and replace your engine coolant every 102,000 miles (163 000 km) or 60 months, whichever comes first, and follow "Schedule B" of the "Maintenance Schedules" section of this manual.

Miles **(Kilometers)**	**3,000** **(5 000)**	**6,000** **(10 000)**	**9,000** **(14 000)**	**12,000** **(19 000)**	**15,000** **(24 000)**
Change the engine oil and engine oil filter, if not replaced at 3 months.	X	X	X	X	X
Rotate the tires.		X		X	
Inspect the engine air cleaner filter, replace if necessary.					X
Lubricate the upper knuckle ball stud at steering & suspension ball joints.		X		X	
Drain and refill the front and rear axles.				X	
Inspect the brake linings.				X	
Clean and lubricate the brake caliper pins.				X	

Miles **(Kilometers)**	**18,000** **(29 000)**	**21,000** **(34 000)**	**24,000** **(38 000)**	**27,000** **(43 000)**	**30,000** **(48 000)**
Change the engine oil and engine oil filter, if not replaced at 3 months.	X	X	X	X	X
Rotate the tires.	X		X		X
Inspect the engine air cleaner filter, replace if necessary.					X
Inspect the PCV Valve, replace if necessary. ◇					X
Replace the spark plugs.					X
Lubricate the upper knuckle ball stud at steering & suspension ball joints.	X		X		X
Drain and refill the front and rear axles.			X		
Inspect the brake linings.			X		
Clean and lubricate the brake caliper pins.			X		
Drain the transfer case and refill.					X

Miles	**33,000**	**36,000**	**39,000**	**42,000**	**45,000**
(Kilometers)	**(53 000)**	**(58 000)**	**(62 000)**	**(67 000)**	**(72 000)**
Change the engine oil and engine oil filter, if not replaced at 3 months.	X	X	X	X	X
Rotate the tires.		X		X	
Inspect the engine air cleaner filter, replace if necessary.					X
Drain and refill the front and rear axles.		X			
Inspect the brake linings.		X			
Lubricate the upper knuckle ball stud at steering & suspension ball joints.		X		X	
Clean and lubricate the brake caliper pins.		X			

Miles	**48,000**	**51,000**	**54,000**	**57,000**	**60,000**
(Kilometers)	**(77 000)**	**(82 000)**	**(86 000)**	**(91 000)**	**(96 000)**
Change the engine oil and engine oil filter, if not replaced at 3 months.	X	X	X	X	X
Rotate the tires.	X		X		X
Inspect the engine air cleaner filter, replace if necessary.					X
Inspect the PCV Valve, replace if necessary. ◇					X
Replace the spark plugs.					X
Inspect the ignition cables, replace if necessary (5.7L Only).					X
Inspect drive belt, replace if necessary.					X
Lubricate the upper knuckle ball stud at steering & suspension ball joints.	X		X		X
Clean and lubricate brake caliper pins.	X				X
Inspect the brake linings.	X				X
Drain and refill the front and rear axles.	X				X
Drain and refill the automatic transmission fluid, and replace main sump filter (4.7L/5.7L Only).‡					X
Drain and refill the transfer case fluid.					X
Flush and replace engine coolant/anti-freeze at 60 months, if not done at 102,000 miles (163 000 km).					X

NOTE: ‡ Applies only if vehicle is used for frequent trailer towing, or fleet/commercial service.

Miles	**63,000**	**66,000**	**69,000**	**72,000**	**75,000**
(Kilometers)	**(101 000)**	**(106 000)**	**(110 000)**	**(115 000)**	**(120 000)**
Change the engine oil and engine oil filter, if not replaced at 3 months.	X	X	X	X	X
Rotate the tires.		X		X	
Inspect the engine air cleaner filter, replace if necessary.					X
Inspect the drive belt, replace if necessary.					X
Lubricate the upper knuckle ball stud at steering & suspension ball joints.		X		X	
Inspect the brake linings.				X	
Clean and lubricate the brake caliper pins.				X	
Drain and refill the front and rear axle fluid.				X	

Miles	**78,000**	**81,000**	**84,000**	**87,000**	**90,000**
(Kilometers)	**(125 000)**	**(130 000)**	**(134 000)**	**(139 000)**	**(144 000)**
Change the engine oil and engine oil filter, if not replaced at 3 months.	X	X	X	X	X
Rotate the tires.	X		X		X
Inspect the engine air cleaner filter, replace if necessary.					X
Inspect the PCV Valve, replace if necessary. ◇					X
Replace the spark plugs.					X
Inspect the drive belt, replace if necessary.					X
Lubricate the upper knuckle ball stud at steering & suspension ball joints.	X		X		X
Drain and refill the transfer case fluid.					X
Inspect the brake linings.			X		
Clean and lubricate the brake caliper pins.			X		
Drain and refill the front and rear axle fluid.			X		

Miles	**93,000**	**96,000**	**99,000**	**102,000**	**105,000**
(Kilometers)	**(149 000)**	**(154 000)**	**(158 000)**	**(163 000)**	**(168 000)**
Change the engine oil and engine oil filter, if not replaced at 3 months.	X	X	X	X	X
Rotate the tires.		X		X	
Inspect the engine air cleaner filter, replace if necessary.					X
Inspect the drive belt, replace if necessary.					X
Lubricate the upper knuckle ball stud at steering & suspension ball joints.		X		X	
Inspect the brake linings.		X			
Clean and lubricate the brake caliper pins.		X			
Drain and refill the front and rear axle fluid.		X			
Flush and replace the engine coolant/anti-freeze, if not done at 60 months.				X	

Miles **(Kilometers)**	**108,000** **(173 000)**	**111,000** **(178 000)**	**114,000** **(182 000)**	**117,000** **(187 000)**	**120,000** **(192 000)**
Change the engine oil and engine oil filter, if not replaced at 3 months.	X	X	X	X	X
Rotate the tires.	X		X		X
Inspect the engine air cleaner filter, replace if necessary.					X
Inspect the PCV Valve, replace if necessary. ◇					X
Replace the spark plugs.					X
Inspect the ignition cables, replace if necessary (5.7L Only).					X
Inspect the drive belt, replace if necessary.					X
Lubricate the upper knuckle ball stud at steering & suspension ball joints.	X		X		X
Inspect the brake linings.	X				X
Clean and lubricate the brake caliper pins.	X				X
Drain and refill the front and rear axle fluid.	X				X
Drain and refill the automatic transmission fluid, replace main sump filter, and spin-on cooler return filter (if equipped). (4.7L/5.7L Only).‡					X
Drain and refill the transfer case fluid.					X
Flush and replace the engine coolant/anti-freeze at 120 months, if not replaced at 102,000 miles (163 000 km).					X

NOTE: ‡ Applies only if vehicle is used for frequent trailer towing, or fleet/commercial service.

Inspection and service should also be performed anytime a malfunction is observed or suspected. Retain all receipts.

◇ This maintenance is recommended by the manufacturer to the owner, but is not required to maintain emissions warranty.

Schedule “A

Miles **(Kilometers)** **[Months]**	**6,000** **(10 000)** **[6]**	**12,000** **(19 000)** **[12]**	**18,000** **(29 000)** **[18]**	**24,000** **(38 000)** **[24]**	**30,000** **(48 000)** **[30]**
Change the engine oil and engine oil filter.	X	X	X	X	X
Rotate the tires.	X	X	X	X	X
Inspect the engine air cleaner filter, and replace if necessary.					X
Replace the spark plugs.					X
Lubricate the upper knuckle ball stud at steering & suspension ball joints.		X		X	
Inspect the brake linings.			X		
Clean and lubricate the brake caliper pins.			X		
Drain the transfer case and refill.					X

Miles	**36,000**	**42,000**	**48,000**	**54, 000**
(Kilometers)	**(58 000)**	**(67 000)**	**(77 000)**	**(86 000)**
[Months]	**[36]**	**[42]**	**[48]**	**[54]**
Change the engine oil and engine oil filter.	X	X	X	X
Rotate the tires.	X	X	X	X
Inspect the brake linings.	X			X
Lubricate the upper knuckle ball stud at steering & suspension ball joints.	X		X	
Clean and lubricate the brake caliper pins.	X			X

Miles	**60,000**	**66,000**	**72,000**	**78,000**
(Kilometers)	**(96 000)**	**(106 000)**	**(115 000)**	**(125 000)**
[Months]	**[60]**	**[66]**	**[72]**	**[78]**
Change the engine oil and engine oil filter.	X	X	X	X
Rotate the tires.	X	X	X	X
Inspect the engine air cleaner filter, and replace if necessary.	X			
Inspect the PCV Valve, replace if necessary. ◇	X			
Replace the spark plugs.	X			
Inspect the ignition cables, replace if necessary (5.7L Only).	X			
Inspect the drive belt, replace if necessary.	X			
Lubricate the upper knuckle ball stud at steering & suspension ball joints.	X		X	
Flush and replace the engine coolant/anti-freeze, at 60 months if not done at 102,000 miles (163 000 km).	X			
Inspect the brake linings.			X	
Clean and lubricate the brake caliper pins.			X	
Drain the transfer case and refill.	X			

Miles	**84,000**	**90,000**	**96,000**	**102, 000**
(Kilometers)	**(134 000)**	**(144 000)**	**(154 000)**	**(163 000)**
[Months]	**[84]**	**[90]**	**[96]**	**[102]**
Change the engine oil and engine oil filter.	X	X	X	X
Rotate the tires.	X	X	X	X
Inspect the engine air cleaner filter, and replace if necessary.		X		
Inspect the PCV Valve, replace if necessary. ◇		X		
Replace the spark plugs.		X		
Inspect the drive belt, replace if necessary.		X		
Lubricate the upper knuckle ball stud at steering & suspension ball joints.	X		X	
Clean and lubricate the brake caliper pins.		X		
Inspect the brake linings.		X		
Flush and replace the engine coolant/anti-freeze if not replaced at 60 months.				X
Drain the transfer case and refill.		X		

Miles **(Kilometers)** **[Months]**	**108,000** **(173 000)** **[108]**	**114,000** **(182 000)** **[114]**	**120,000** **(192 000)** **[120]**
Change the engine oil and engine oil filter.	X	X	X
Rotate the tires.	X	X	X
Inspect the engine air cleaner filter, and replace if necessary.			X
Inspect the PCV Valve, replace if necessary. ◊			X
Replace the spark plugs.			X
Inspect the ignition cables, replace if necessary (5.7L Only).			X
Inspect the drive belt, replace if necessary.			X
Lubricate the upper knuckle ball stud at steering & suspension ball joints.	X		X
Inspect the brake linings.	X		
Clean and lubricate the brake caliper pins.	X		
Flush and replace the engine coolant/anti-freeze if not done at 102,000 miles (163 000 km).			X
Drain the transfer case and refill.			X

Inspection and service should also be performed anytime a malfunction is observed or suspected. Retain all receipts.

◊ This maintenance is recommended by the manufacturer to the owner, but is not required to maintain emissions warranty.

WARNING: You can be badly injured working on or around a motor vehicle. Do only that service work for which you have the knowledge and the right equipment. If you have any doubt about your ability to perform a service job, take your vehicle to a competent mechanic.

SUSPENSION

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WHEEL ALIGNMENT

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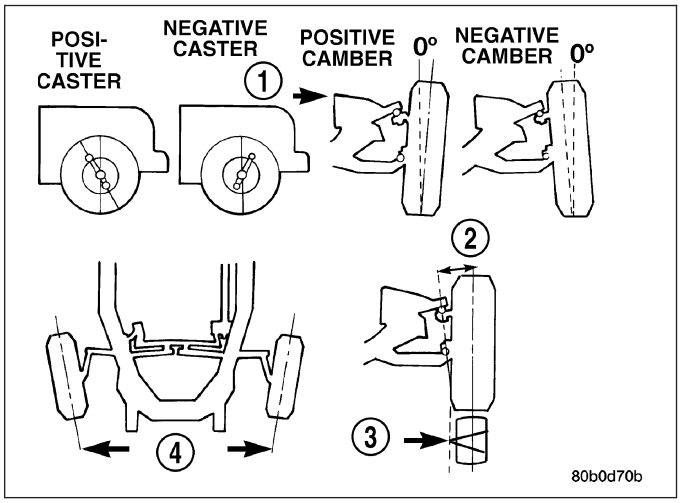
WHEEL ALIGNMENT

DESCRIPTION

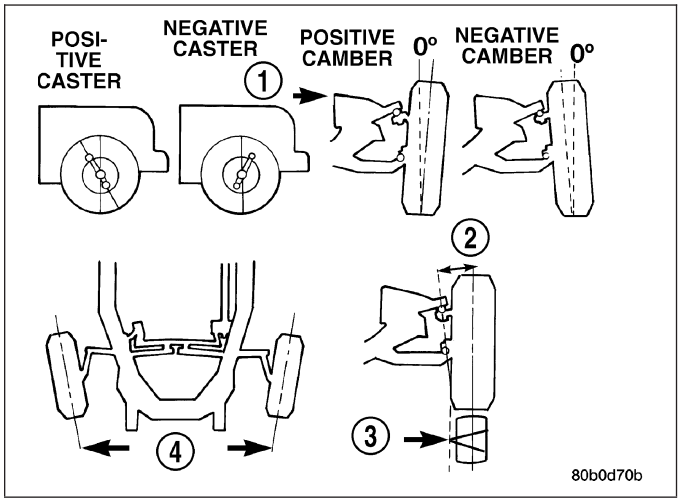
NOTE: Suspension components with rubber/urethane bushings should be tightened with the vehicle at normal ride height. It is important to have the springs supporting the weight of the vehicle when the fasteners are torqued. If springs are not at their normal ride position, vehicle ride comfort could be affected and premature bushing wear may occur.

Wheel alignment involves the correct positioning of the wheels in relation to the vehicle. The positioning is accomplished through suspension and steering linkage adjustments. An alignment is considered essential for efficient steering, good directional stability and to minimize tire wear. The most important measurements of an alignment are caster, camber and toe.



CAUTION: Never attempt to modify suspension or steering components by heating or bending.

OPERATION



- **CASTER (1)** is the forward or rearward tilt of the steering knuckle from vertical. Tilting the top of the knuckle forward provides less positive caster. Tilting the top of the knuckle rearward provides more positive caster. Positive caster promotes directional stability. This angle enables the front wheels to return to a straight ahead position after turns.
- **CAMBER (2)** is the inward or outward tilt of the wheel relative to the center of the vehicle. Tilting the top of the wheel inward provides negative camber. Tilting the top of the wheel outward provides positive camber. Incorrect camber will cause wear on the inside or outside edge of the tire.
- **TOE (4)** is the difference between the leading inside edges and trailing inside edges of the front tires. Wheel toe position out of specification cause's unstable steering, uneven tire wear and steering wheel off- center. The wheel toe position is the **final** front wheel alignment adjustment.
- **THRUST ANGLE (3)** is the angle of the rear axle relative to the centerline of the vehicle. Incorrect thrust angle can cause off-center steering and excessive tire wear. This angle is not adjustable, damaged component(s) must be replaced to correct the thrust angle.

DIAGNOSIS AND TESTING

PRE-ALIGNMENT INSPECTION

Before starting wheel alignment, the following inspection and necessary corrections must be completed. Refer to Suspension and Steering System Diagnosis Chart below for additional information.

1. Inspect tires for size, air pressure and tread wear.
2. Inspect front wheel bearings for wear.
3. Inspect front wheels for excessive radial or lateral runout and balance.
4. Inspect ball studs, linkage pivot points and steering gear for looseness, roughness or binding.
5. Inspect suspension components for wear and noise.
6. Check suspension ride height.
7. Road test the vehicle.